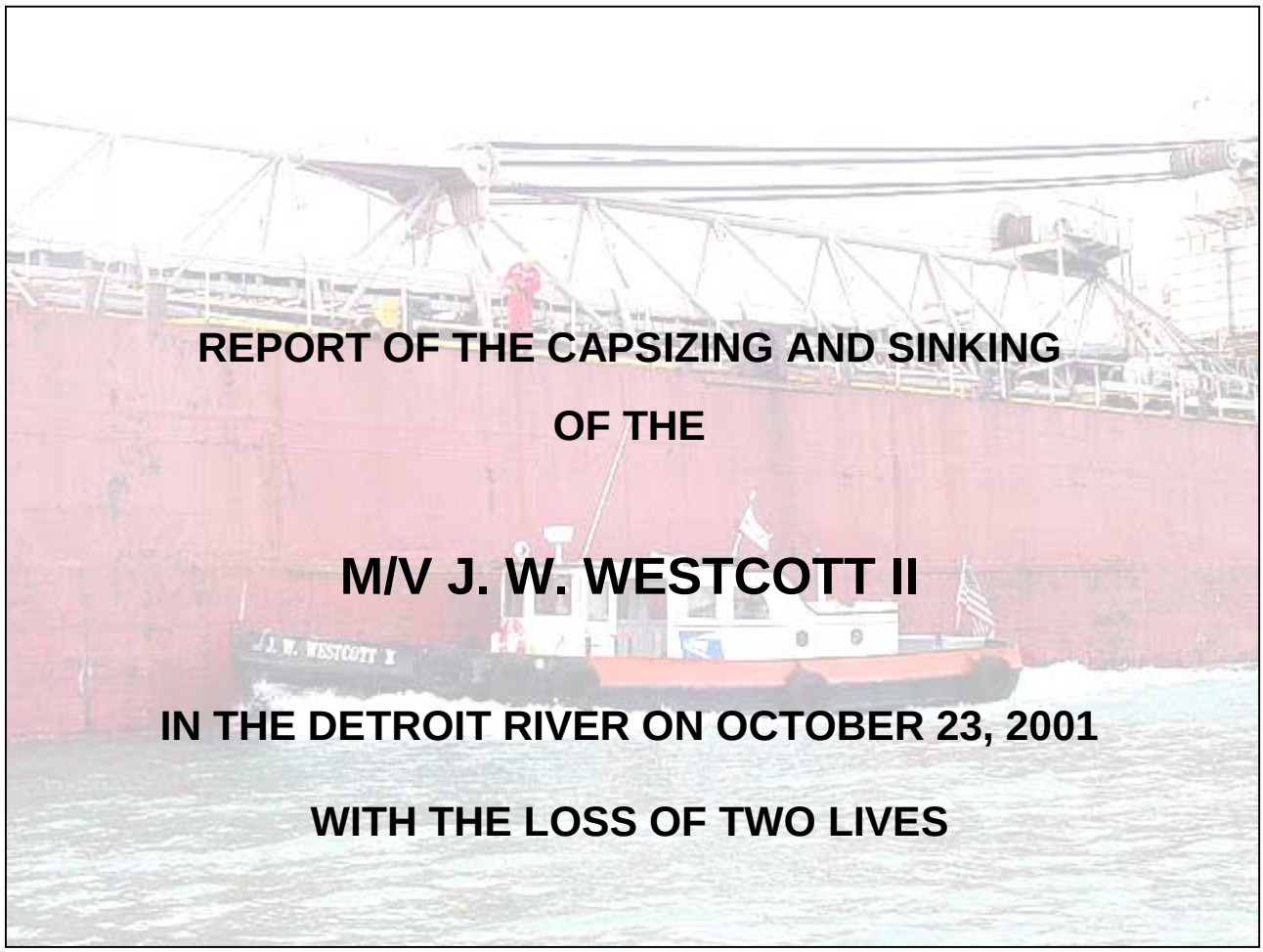

# REPORT OF THE CAPSIZING AND SINKING

# OF THE

# M/V J. W. WESTCOTT II

# IN THE DETROIT RIVER ON OCTOBER 23, 2001

# WITH THE LOSS OF TWO LIVES

U.S. Department of Transportation
United States Coast Guard

Commanding Officer
U. S. Coast Guard
Marine Safety Office Detroit

110 Mt. Elliott Ave.
Detroit, MI 48207-4380
Staff Symbol: CO
Phone: 313-568-9580
FAX: 313-568-9581

16700/MC01013409
October 7, 2002

From: Commanding Officer, Marine Safety Office Detroit
To: Investigating Officer, Marine Safety Office Detroit

Subj: REPORT OF THE CAPSIZING AND SINKING OF THE M/V J. W. WESTCOTT II IN THE DETROIT RIVER ON OCTOBER 23, 2001 WITH THE LOSS OF TWO LIVES

1. I concur with the findings, conclusions and recommendations of the subject investigation.

2. This letter shall be included as an addendum to all copies of the Investigation Report.

3. This report will be made available on the MSO Detroit web site.

4. This investigation is closed.

P. G. GERRITY

U.S. Department of Transportation
United States Coast Guard

Commanding Officer
U. S. Coast Guard
Marine Safety Office

110 Mt. Elliott
Detroit, MI 48207
Staff Symbol: IO
Phone: 313-568-9488
FAX: 313-568-9581

16700/MC01013409

From: Investigating Officer, Marine Safety Office Detroit, Michigan
To: Commanding Officer, Marine Safety Office Detroit, Michigan

Subj: REPORT OF THE CAPSIZING AND SINKING OF THE M/V J. W. WESTCOTT II, O.N. 258859; ON 23 OCTOBER 2001 IN THE DETROIT RIVER, DETROIT MICHIGAN, WITH LOSS OF TWO LIVES

Summary: At approximately 0650 on October 23, 2001, the uninspected vessel J.W. WESTCOTT II capsized and sank in the Detroit River, just inside U. S. waters, while making an approach to conduct a pilot exchange with the tank ship SIDSEL KNUTSEN. On board the J. W. WESTCOTT II were the captain, one deckhand and two passengers (pilots). One of the pilots was scheduled to relieve the pilot on the SIDSEL KNUTSEN, which was upbound in the Detroit River. The other pilot was to be dropped off at the KAPITONAS ANDZEJAUSKAS, which was anchored in the Ojibway Anchorage in the Ojibway Anchorage in the Detroit River in Windsor, Ontario, Canada. The Captain and deckhand of the J. W. WESTCOTT II drowned, however, the two pilots on board escaped without serious injury.

Vessel Data:

| | |
|---|---|
| Vessel #1: | |
| Name: | J. W. WESTCOTT II |
| Official Number: | 258859 |
| Service: | Pilot boat and mail boat |
| Lifesaving equipment: | 14 adult size type V lifejackets |
| Gross Tonnage: | 14 |
| Length: | 44.3’ |
| Beam: | 13.3’ |
| Draft: | 4.5’ |
| Propulsion: | 671 Detroit diesel, single screw |
| Horsepower: | 200 |
| Year Built: | 1949 |
| Place Built: | Paasche Marine, Erie, Pennsylvania |
| Home Port: | Detroit, Michigan |
| Owner/Operator: | J. W. Westcott Company, Foot of 24th Street, Detroit, Michigan 48222 |
| Master: | Catherine M. Nasiatka<br>Master, 50 GT, Great Lakes and Inland Waters, License #827771[1] |
| Crew: | David Lewis<br>Unlicensed |

[1] Enclosure 1, Copy of Coast Guard License #827771 issued to Catherine Marie Nasiatka

Vessel #2:

| | |
|---|---|
| Name: | SIDSEL KNUTSEN |
| Official Number: | L9019779 |
| Service: | Tank ship |
| Gross Tonnage: | 15806 |
| Length: | 533.2’ |
| Beam: | 75.5’ |
| Draft: | 31.8’ |
| Propulsion: | Diesel electric |
| Horsepower: | 10,700 |
| Year Built: | 1993 |
| Place Built: | Seville, Spain |
| Home Port: | Haugensund, Norway |
| Owner: | Knutsen O.A.S. Shipping, North 5501, P.O. Box 158, Haugensund, Norway |
| Operator: | Neste OY Shipping, Keilaranta 8, SF-02150 Espoo, Finland |
| Master: | Jan Holthe |
| Pilot: | Robert B. Hull, Canadian Great Lakes Pilotage Authority |

Record of Deceased:

| | |
|---|---|
| Name: | Catherine Marie Nasiatka |
| Age: | 48 |
| Status on Vessel: | Master |
| Cause of Death: | Drowning |

| | |
|---|---|
| Name: | David Lewis |
| Age: | 50 |
| Status on Vessel: | Crewmember |
| Cause of Death: | Drowning |

Record of Survivors:

| | |
|---|---|
| Name: | David Thomas Roessllein |
| Status on Vessel: | Passenger |

| | |
|---|---|
| Name: | Allain Gindroz |
| Status on Vessel: | Passenger |

J. W. WESTCOTT II Description and Service:

The J. W. WESTCOTT II operates exclusively on the Detroit River delivering mail, general cargo, and pilots to passing commercial vessels. The vessel was built in 1949 for the J. W. Westcott Company specifically for the purpose described above, and has been engaged in the same operation and in the same waters since its construction. The J. W. Westcott Company was founded in 1874 and is presently located at the Foot of 24th Street, downriver from the Ambassador Bridge, in Detroit, Michigan. The J. W. WESTCOTT II is considered a local historic landmark and provides services to nearly every deep draft foreign and domestic vessel that operates in the Great Lakes.

The J. W WESTCOTT II was built by the Paasche Marine Company of Erie Pennsylvania in 1949. The company has since gone out of business. No original drawings or diagrams of the vessel exist.

The J. W. WESTCOTT II is an uninspected vessel. 46 CFR, Subchapter T – Small Passenger Vessels, requires vessels to be certificated if carrying more than six passengers for hire. The J. W. WESTCOTT II does not carry more than six passengers for hire, and as such, is not required to be inspected under 46 CFR, Subchapter T. 46 CFR Subchapter I – Cargo and Miscellaneous Vessels, requires Coast Guard inspection for vessels over 15 gross tons which carry freight for hire. The J. W. WESTCOTT II Certificate of Documentation[2] lists 14 gross tons, and as such, the vessel is not required to be inspected under 46 CFR, Subchapter I. The provisions of 46 CFR, Subchapter C – Uninspected Vessels, apply to the J. W. WESTCOTT II. These are the same Coast Guard requirements that apply to typical recreational vessels and uninspected towing vessels. There are no specific Coast Guard regulations for vessels operating as pilot boats.

The minimum Coast Guard license required for operators of the J. W. WESTCOTT II is Operator, Uninspected Passenger Vessel. The J. W. Westcott Company requires the captains they employ to hold, at a minimum, a Coast Guard license as a Master, 50 Gross Tons, Great Lakes and Inland Waters.

A typical service call for the J. W. WESTCOTT II involves the vessel coming alongside a ship as much as 1,000 feet in length at "river speed"[3]. Once alongside, the crew of the J. W. WESTCOTT II delivers mail, newspapers or small parcels using a bucket and line. The J. W. WESTCOTT II also serves as a pilot boat. Vessels requiring the service of the J. W. Westcott Company usually contact the Company's dispatcher on VHF Channel 11 or 12, and then switch to VHF channel 10 to arrange for service and agree on a meeting time. The pilot station is located approximately 1,200 yards downstream of the Ambassador Bridge, is denoted on NOAA Chart 14848[4], and is the usual location for the J. W. WESTCOTT II to service ships, whether for a pilot exchange or mail delivery.

A two-person crew, working in a twelve-hour shift, typically operates the J. W. WESTCOTT II. During a shift, the crew may service as many as eight or more ships. Other duties of the

[2] Enclosure 2, Certificate of Documentation for J. W. Westcott II, Official Number 258859
[3] "River speed" in the Detroit River is 12 statute miles per hour (10.4 knots), as codified in 33 CFR 162.138(a)(ii).
[4] Enclosure 3 is a copy of a portion of Chart 14848, with notations showing the relationship between the pilot station, the J. W Westcott Company berth in Detroit and the accident site.

crew while not engaged in operating the vessel, include vessel maintenance, fueling, and log keeping. Some crewmembers also perform shifts as dispatchers. As dispatchers, they take radio calls from ships, coordinate ground transportation for pilots, and operate the post office and bookstore.

The operation of the J. W. WESTCOTT II more closely resembles that of a towing vessel as opposed to that of a passenger vessel. It is not typical for passenger vessels to come alongside moving freight ships. Tow vessels routinely come alongside moving freight ships to assist in maneuvering.

Weather Data:

Winds: south-southwest, 10-15 kts; Air temperature: 61 degrees F; Water temperature: 53 degrees F; Cloudy; Visibility: 7 nautical miles; Seas: 1-2 ft, Current: 1.4 knots (approximate).

Summary of Search Efforts:

Search units involved: USCG Station Belle Isle (CG41479, CG41306, and CG214363), USCG Air Station Detroit (CG6553 and CG6506), CCGC SORA's Mk V RHI, Army Corps of Engineers (ACOE) M/V PAJ, Detroit Fireboat CURTIS RANDOLPH, LaSalle Fire and Rescue Boat, Windsor Police Department vessel GUARDIAN, M/V SIDSEL KNUTSEN, M/V STORMONT. The SIDSEL KNUTSEN came about in the Detroit River and commenced search immediately after the incident. The SIDSEL KNUTSEN shone her spotlight in the river and detected the two pilots, Mr. Gindroz and Mr. Roesselein. The tug STORMONT, whose usual operation is towing a Hazardous Material barge from Detroit, Michigan to Windsor, Ontario, detached from the barge and commenced searching for survivors immediately upon hearing of the incident. The STORMONT was in direct radio contact with the SIDSEL KNUTSEN. When the SIDSEL KNUTSEN spotted the two survivors in the water, the Master directed the STORMONT to the proper location, where the STORMONT recovered the survivors then took them to Windsor, Ontario for treatment at a local hospital.

Coast Guard Group Detroit, the SAR Mission Coordinator, released the SIDSEL KNUTSEN from the scene. The vessel was directed to continue its transit to the Sun Oil dock in Sarnia, Ontario, Canada.

All vessels and air assets continued to search for the two missing crewmembers throughout the day. Commander, Ninth Coast Guard District granted permission to suspend the search at 1700 local time. On October 29, 2001, the body of Catherine Nasiatka was recovered when the J. W. WESTCOTT II was salvaged from the waters of the Detroit River. Her body was taken to the Windsor Regional Hospital for autopsy and identification. Hunters discovered the body of David Lewis on November 27, 2001 near Amherstburg, Ontario, Canada. His body was also taken to the Windsor Regional Hospital.

Summary of Investigation:

Investigators from U.S. Coast Guard Marine Safety Office (MSO) Detroit traveled to Windsor, Ontario to interview the two survivors, Tom Roessllein and Alain Gindroz. The interviews were conducted at the Windsor Police Department in Windsor, Ontario. A second investigation team from MSO Detroit boarded the SIDSEL KNUTSEN as she transited the St. Clair River to Sarnia, Ontario, Canada. Interviews were conducted with the Captain of the SIDSEL KNUTSEN, Jan

Holthe, 3rd Mate Wilfredo Colitoy Goc-Ong, Ordinary Seaman (OS) Evelix G. Le Asis and, the marine pilot, Robert B. Hull of the Canadian Pilotage Authority. Personnel from Coast Guard Station St. Clair Shores conducted field sobriety tests on all bridge personnel. The results were negative for all personnel.[5] The Captain of the Port Detroit established a safety zone around the site of the sunken vessel to protect the wreck site and to ensure the safety of divers and surface search vessels.

Divers from the Detroit Police Department located the vessel in position 42º 17.5' North, 083º 5.5' West, which is approximately 75 yards inside Canadian waters. Foul weather prevented any salvage attempt until October 28, 2001. The J. W. WESTCOTT II was recovered on October 29, 2001, after a two-day salvage operation. The body of Catherine Nasiatka was discovered in the forward most portion of the engine room. Her body was recovered and taken to the Windsor, Ontario Coroner's Office for identification and autopsy. The body of David Lewis was not found at the time the vessel was recovered. His body was discovered on November 27, 2001, near Amherstburg, Ontario, Canada, approximately 2.5 miles downstream of the wreck site, and taken to the Amherstburg Coroner's Office for autopsy.

Both Knutsen O.A.S. and the J. W. Westcott Company submitted Coast Guard Form 2692, Report of Marine Accident, Injury or Death, to Marine Safety Office Detroit.[6]

Findings of Fact

1. On October 23, 2001, the SIDSEL KNUTSEN was upbound in the Detroit River loaded with 35,000 gallons of gasoline. At approximately 0650, she was on a course of 023º True, upriver of Fighting Island. Her speed was between 8.9 and 9.2 knots. The current in the Detroit River in the vicinity of the casualty is approximately 1.4 knots[7].

2. The marine pilot onboard the SIDSEL KNUTSEN was Robert Hull of the Canadian Pilotage Authority. Captain Hull boarded the SIDSEL KNUTSEN at the Welland Canal Lock #7 at 2315 on October 21, 2001. Captain Hull has been a Great Lakes pilot since May 4, 1994. He has sailed Great Lakes and Oceans routes since June of 1973.

3. The Captain of the SIDSEL KNUTSEN was Jan Holthe. Captain Holthe has served as Captain of the SIDSEL KNUTSEN since 1995. He has nine years experience sailing on the Great Lakes, including the Detroit River.

4. At 0515 Captain Hull attempted to contact the J. W. Westcott dispatcher to arrange a time to transfer the pilots at the pilot station. The dispatcher on duty was Charles Weiss. Captain Hull tried on VHF channels 10 and 12, but did not receive a response. At 0545 he was successful in contacting Mr. Weiss via VHF channel 11. In a brief conversation, Mr. Weiss and Captain Hull agreed on a 0715 pilot transfer. No specific reference was made to the location of the pilot exchange. Mr. Weiss did not tell Captain Hull that the J. W. WESTCOTT II intended to transfer a second pilot at the Ojibway Anchorage.

[5] Enclosure 4, CG Form 2692B, "Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident."
[6] CG Form 2692 from Knutsen Shipping is included as Enclosure 5. CG Form 2692 from the J. W. Westcott Company is included as Enclosure 6.
[7] United States Coast Pilot 6, 31st Edition, page 199. U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, National Ocean Service, Washington DC, 2001

5. At 0620 Mr. Weiss called the SIDSEL KNUTSEN to inform Captain Hull that his relief had arrived at the J. W. Westcott Company office.

6. The J. W. WESTCOTT II left its berth at the Foot of 24th Street in Detroit at approximately 0630. The Captain was Catherine M. Nasiatka. The deckhand was David Lewis. Also on board the vessel were two Great Lakes pilots from the Canadian Pilotage Authority, Thomas Roessllein and Alain Gindroz. The purpose of the trip was to take Mr. Roessllein to the SIDSEL KNUTSEN to relieve Captain Hull, and to take Mr. Gindroz to the M/V KAPITAN KARISHENKO, which was anchored in the Ojibway Anchorage, so that he could pilot the ship out of the Detroit River.

7. Captain Nasiatka held a Coast Guard license as Master, 50 Gross Tons-Great Lakes and Inland Waters (license number 827771), issued on June 29, 2000 by the Officer In Charge, Marine Inspection, Toledo, Ohio.

8. The J. W. WESTCOTT II has sliding cargo doors on each side of the pilothouse. The cargo doors slide fore and aft on suspended rails. The average gap between the port cargo door and the doorframe was ¾ inches. Both survivors stated that both of the cargo doors were closed at the time of the incident. Both cargo doors rolled back and forth freely numerous times during salvage operations.

9. During the transit, until the time of the casualty, the position of each person on board the J. W. WESTCOTT II was as follows: Mr. Gindroz was standing on the port side of the pilothouse, at the aft end of the sliding cargo door. Mr. Roessllein was standing approximately amidships, aft of Mr. Gindroz. Mr. Lewis was standing near the starboard side cargo door. Captain Nasiatka was at the helm.

10. Mr. Gindroz was wearing a water-activated flotation collar, provided to him by the Canadian Pilotage Authority. Mr. Roessllein was wearing a foul-weather coat with flotation. Neither Captain Nasiatka nor Mr. Lewis were wearing flotation devices.

11. In a written statement to the Canadian Great Lakes Pilotage Authority, Captain Hull stated that on the morning of October 23, 2001, he was on the bridge of the SIDSEL KNUTSEN with the Captain, the officer of the watch and the able bodied seaman. Shortly before 0700, he left the bridge to go one deck below to gather his personal belongings in preparation of disembarking the vessel upon relief. He was not aware of the location of the J.W. WESTCOTT II at that time because there had not been any communication between the two vessels and he was not expecting the J. W. WESTCOTT II until several minutes later.[8]

12. When the SIDSEL KNUTSEN was approximately abeam of Zug Island, Captain Holthe stated that he observed the J. W. WESTCOTT II coming downriver in a meeting situation with the SIDSEL KNUTSEN from an angle of approximately 15 degrees off his port bow. He stated that the J. W. WESTCOTT II passed down the port side of the SIDSEL KNUTSEN, out of sight. He acknowledged that the pilot was not on the bridge at that

[8] Enclosure 7, Copy of Captain Hull's voluntary statement written on October 24, 2001 at the request of the Canadian Great Lakes Pilotage Authority.

time. Upon seeing the J. W. WESTCOTT II, Captain Holthe stated that he was reminded that the pilot ladder was not ready. He directed the 3rd Mate, Wilfredo Colitoy Goc-Ong, and Ordinary Seaman Evelix B. Le Asis to make sure the pilot ladder was ready for the pilot transfer. Captain Holthe stated that although he saw the J. W. WESTCOTT II, he knew it was early for the pilot transfer and so he did not expect the J. W. WESTCOTT II to come alongside.

13. According to Captain Roessllein and Captain Gindroz, little conversation took place amongst the people on board the J. W. WESTCOTT II. According to Sam Buchanan, the senior operator for the J. W. Westcott Company, it was common for people to remain relatively quiet while onboard the J. W. WESTCOTT II because the noise of the engine made conversation difficult. Mr. Roessllein had a brief exchange with Mr. Lewis regarding Mr. Roessllein's bicycle, which he had brought on board with him. According to both Captain Roessllein and Captain Gindroz, there was only one other relevant exchange of words, which took place between Mr. Lewis and Captain Nasiatka after the J. W. WESTCOTT II was alongside the SIDSEL KNUTSEN. Mr. Lewis asked, "Are you stuck?" To which Captain Nasiatka replied, "Yes, I'm stuck."

14. The SIDSEL KNUTSEN'S Ordinary Seaman, Mr. Goc-Ong, observed the J. W. WESTCOTT II approach close to the stern of the SIDSEL KNUTSEN. He stated that the J. W. WESTCOTT II approached from a position further behind the vessel than he had seen in similar pilot transfers on the Detroit River in the past. He said that shortly after the J. W. WESTCOTT II came alongside the SIDSEL KNUTSEN, she listed to port, and then capsized. He immediately reported the accident to the bridge. At about the same time, Captain Hull returned to the bridge. He was immediately informed of the accident. Using visual references, Captain Holthe fixed the position of the incident at 42º 17.5' North, 083º 05.75' West. Captain Holthe plotted the position himself on the pilothouse chart[9]. He placed an "X" and the letters "MOB" indicating Man Overboard, in the spot where he determined the incident to have taken place. The position placed the incident approximately 50 yards inside U. S. waters.

15. Both Captain Roessllein and Captain Gindroz said that water began to ship over the bow of the J. W. WESTCOTT II almost immediately after she was alongside the SIDSEL KNUTSEN. Water came over the bow and began entering the pilothouse through the gap in the bottom of the port cargo door. The bottom of the port cargo door is 6 inches above the deck of the J. W. WESTCOTT II. Captain Gindroz stated that the bow dipped below the water for about 15 seconds shortly after coming alongside. Both survivors stated that the water filled the pilothouse at a rapid rate. Although neither man could accurately determine the exact time it took for the water to rise into the pilothouse, both men stated that water was at chest level in less than two minutes. During this time, the J. W. WESTCOTT II began listing heavily to port.

16. Captain Gindroz stated that he opened the port side sliding cargo door and exited the J. W. WESTCOTT II through that cargo door. He stated that his initial attempts to open the cargo door were unsuccessful. After several more attempts, during which time the vessel

[9] Enclosure 8, copy of pilothouse chart taken from the SIDSEL KNUTSEN on October 23, 2001. The fixes indicated on this chart were not taken on October 23, 2001. These markings were from a previous transit of the Detroit River.

continued to take on water and continued its port list, the cargo door slid open and Captain Gindroz exited the vessel. His water-activated floatation device deployed and he immediately floated to the surface. Captain Roesslein stated that he was pinned against the overhead of the pilothouse as a result of the buoyancy of his float coat. He was able to overcome the force of the buoyancy and exit through the port cargo door by taking a last breath of air, and swimming down through the open cargo door. Once free of the vessel, he immediately floated to the surface.

17. Captain Gindroz and Captain Roesslein stated that when they reached the surface, the J. W. WESTCOTT II was perpendicular in the water, stern up, with the keel of the vessel facing upriver. They stated that the propeller was out of the water and turning. They both heard the engine running and described the sound as "screaming." Neither man could recall the position of the rudder. They noted that the vessel came to an abrupt stop, and concluded that its bow had struck the bottom of the river. The water depth in that location is approximately 34 feet. The river current then forced the stern of the J. W. WESTCOTT II to fall slowly downriver, towards the vessels deck, until it was completely submerged.

18. The J.W. WESTCOTT II was found completely capsized with its stern rail resting on the river bottom. Its bow was raised at an approximately 45-degree angle. The bow was facing downstream, at an approximate heading of 220º True.

19. Captain Gindroz and Captain Roesslein were rescued by the tug STORMONT.

20. The J. W. WESTCOTT II was recovered in Canadian waters in the Detroit River in position 42º 17.14' North, 083º 05.92' West, approximately 75 yards from the international boundary between the United States and Canada.

21. The forward deck hatch cover of the J. W. WESTCOTT II was found missing upon recovery of the vessel.[10] During salvage on October 28, 2001, the vessel was turned right side up on the river bottom. As a result of doing so, a large burst of air erupted on the surface and continued bubbling for over 30 seconds. There was no trace of oil or any other contaminant in the air bubbles. The forward deck hatch cover opens into the forward compartment. The only compartment that was not contaminated with oil or diesel fuel when the vessel was recovered was the forward compartment. The loss of the hatch cover does not appear to have contributing to the casualty, because the forward compartment was not flooded. The hatch cover was likely lost after the vessel capsized, and air was trapped inside the compartment, which was released when the vessel was righted during salvage.

22. The J. W. WESTCOTT II was equipped with a cable and chain steering system. The helm was found in the "left-full" position, as was the rudder.

[10] Enclosure 9 – Photos of the forward deck hatch opening of the J. W. WESTCOTT II after salvage on October 29, 2001.

23. The throttle was found in the "full" position and the transmission control was found partially between the neutral position and astern position.[11]

24. The pilot light switch was in the "on" position; the running light switch was in the "on" position. The port deck light switch was in the "off" position; the starboard deck light switch was in the "on" position.[11]

25. The hull of the J. W. WESTCOTT II is painted black. There were five black truck tires fastened to the rail of the J. W. WESCOTT II on each side of the vessel. Three of the tires are mounted near the bow, and are adjacent to one another. The first of these tires is mounted approximately 12 feet aft of the bow. One tire is mounted at approximately amidships; the fifth tire is mounted approximately 8 feet from the stern.[12]

26. Several black markings were found on the port side of the SIDSEL KNUTSEN. One of the black marks measures approximately 3 feet high and 26 feet long and was approximately 4 feet above the water line. Just aft of this mark are two black marks, which represent the shape of truck tires. Other smaller and darker black marks were found aft of the tire marks, under the turn of the bilge. One bare metal spot measuring approximately 4"x5" was found under the turn of the bilge.[13]

27. Welded on the main deck of the J. W. WESTCOTT II, located at approximately amidships and outboard on both the port and starboard sides, are two-inch pipes, approximately 14 inches high, which serve as air vents for the engine room. The port side vent pipe had a one-inch out hole rusted out of it near where the pipe is welded to the deck.[14]

28. There were a total of 14 adult sized, Type V, Coast Guard approved lifejackets found on the J. W. WESTCOTT II. Two life jackets were recovered during salvage operations and 12 were found on board after salvage. The vessel typically carried a life ring on a bracket on the outside forward bulkhead, just under the pilothouse forward window. The life ring was not recovered.

29. Most of the structural damage to the J. W. WESTCOTT II occurred as a result of salvage operations. The damage included the following items: two broken windows, damage to the port side window frames, the port sliding cargo door was off its track and bent, one towing bit was completely ripped out of the deck, the port, aft gusset had a 16 inch tear near one of the freeing ports.

30. Captain Hull stated that the speed of the SIDSEL KNUTSEN was between 8.8 and 9.2 knots, as determined by the bridge GPS receiver. Information taken from the propeller

[11] Enclosure 10 – Photos of J. W. WESTCOTT II pilothouse controls taken on October 29, 2001.
[12] Enclosure 11 - Photos of J. W. WESTCOTT II in drydock after salvage, dated November 8, 2001. Photos illustrate the fender tires mounted on each side of the vessel.
[13] Enclosure 12 - Series of ten photos dated October 26, 2001, showing the black tire marks and paint markings on the side of the SIDSEL KNUTSEN created by the J. W. WESTCOTT II.
[14] Enclosure 13, Photos of port side engine room air vent pipe showing 1 inch hole at the base of the pipe, dated November 8, 2001.

pitch order recorder[15] indicate that the propeller Pitch Value was 62. The Pilot Card[16] indicated that at with the Pitch Value at 60, the approximate speed of the vessel is 9 knots. The speed limit on the Detroit River is 12 statute miles per hour, or 10.4 knots, often referred to as "river speed."

31. By interpreting the course recorder on the SIDSEL KNUTSEN, it is evident that she was steadied up on a course of 023° True. At approximately 0652, she made a radical course change, accounting for the ship turning around after the casualty.[17] This places the time of the incident approximately between 0640 and 0652 on October 23, 2001.

Analysis

Part I. Vessel Stability

1. Stability Characteristics. The Coast Guard Marine Safety Center (MSC) evaluated the stability characteristics of the J. W. WESTCOTT II. Their analysis is included in its entirety as an enclosure to this report[18]. The MSC report only considered the J. W. WESTCOTT II in a static condition and does not take into account the dynamic forces on the J. W. WESTCOTT II while the vessel was alongside the SIDSEL KNUTSEN. The MSC report used the General Hydrostatic software program to compute three different flooding scenarios. The chart on page 3 of Enclosure 17 tabulates the results of the flooding scenarios. The MSC concluded that the J. W. WESTCOTT II, under static conditions, had sufficient stability prior to the casualty. The row on page 3 of Enclosure 17 entitled *Initial* indicated the stability characteristics of the vessel in a static condition. The static metacentric height of the J. W. WESTCOTT II was 7.04 feet. In a static condition, the vessel has 2.09 feet of freeboard. The distance from the waterline to the bottom of the cargo doors is 2.95 feet.

    a. Water on Deck. The *Plus Water on Deck* calculation assumes 6 inches of water on the foredeck and the port side deck only, taking the port list into account. With 6 inches of water on the foredeck and port deck, the metacentric height is reduced to 3 feet, freeboard reduced to 3 inches and the height to the cargo door reduced to less than 11/2 feet. In this condition, the vessel will take on a list of almost 14 degrees. At this point, the vessel still has sufficient stability. The only factor used to determine the list is the water on deck. It does not take into consideration the dynamic forces caused by the interaction between the two vessels.

    b. Water in Pilothouse. Survivors stated that the water in the pilothouse reached chest level. MSC assumed a water depth of three feet in the pilothouse under this flooding scenario. When three feet of water in the pilothouse is added to the water on deck, the vessel's freeboard is reduced to –0.93 feet, meaning, the freeboard is under water. The bottom of the cargo door would be about 3 inches from the water. In this

[15] Enclosure 14, Copy of propeller pitch order reading output from SIDSEL KNUTSEN October 23, 2001. Time is in Greenwich Mean Time.
[16] Enclosure 15, Copy of Pilot Card for SIDSEL KNUTSEN used by Captain Hull on October 23, 2001.
[17] Enclosure 16, Copy of Course Recorder output from SIDSEL KNUTSEN October 23, 2001.
[18] Enclosure 17, Coast Guard Marine Safety Center stability analysis of J. W. WESTCOTT II, dated March 12, 2002.

scenario, the J. W. WESTCOTT II would not maintain adequate stability to remain afloat.

c. Water in Engine Room. The one-inch hole at the base of the port engine room air vent pipe also allowed ingress of water. About 350 gallons of water would enter through the vent pipe hole. Adding this water to the flooding calculations reduces GM by less than 1 foot, reduces freeboard from –0.93 feet to –1.10 feet and increases the heel angle to over 16 degrees. The ingress of water through the port engine room air vent pipe hole, in itself, did not significantly reduce the stability of the vessel.

2. Flooding Rates. MSC estimated the rate at which water entered the J. W.WESTCOTT II. The tabulations are entered in Tables 1 through 7 in enclosure 3 to the MSC report. The following is a summary of the relevant portions of the "Flooding Rate Approximations."

a. Table 1, Space Volume. The relevant column in Table 1 is the Volume in gallons of each of the compartments of the J. W.WESTCOTT II.

b. Table 2, Downflooding Source. Table 2 lists the ingress sources and the size of each source. The *Closed Cargo Door* column is a measure of the gap in the bottom of the port cargo door. The *Open Cargo Door* assumes the door in a half open position (23 inches). The *Hole in Port-Side Bilge Vent* is the one-inch square hole that investigators found at the base of the port side engine room air vent.

c. Table 3, Open Cargo Door Flow Rates by Water Velocity. This table assumes the ingress rate of water through the cargo door if the cargo door were half open. At a speed of 8 knots, water would enter the pilothouse at a rate of 13.5 feet per second. At that rate, it would take 6.48 seconds to accumulate 3 feet of water in the pilothouse.

d. Table 4, Closed Cargo Door Flow Rates by Water Velocity. This table lists the flooding rates assuming the cargo door is closed. In the closed position, the total gap area at the base of the door is .024 square feet. At 8 knots, it would take 1 minute, 40 seconds to accumulate 3 feet of water in the pilothouse.

e. Table 5, Closed Cargo Door Flow Rates by Hydrostatic Head. This table lists the volume and time to accumulate 3 feet of water in the pilothouse based only on the head pressure of water. With water depth of just under 5 inches, it would take 4.4 minutes to accumulate 3 feet of water in the pilothouse. This measure is cumulative to the flow rate velocity.

f. Table 6, Bilge Vent Hole Flow Rates by Hydrostatic Head. At .4 feet (4.8 inches) of head pressure, 608 gallons of water would enter the engine room in 3.21 minutes. 608 gallons represents over 22% of the available volume of the engine room.

g. Table 7, Cumulative Flooding Rate, Closed Cargo Door. Using conservative estimates of 2 knots of water velocity and .02 feet of hydrostatic head, it would take 3.21 minutes to accumulate 3 feet of water in the pilothouse, a total volume

of over 748 gallons. Three feet of water in the pilothouse is sufficient to cause a loss of stability of the J. W. WESTCOTT II.

Part II. Dynamic Hydraulic Forces

1. Effects of Suction. The nature of the work in which the J. W. WESTCOTT II is engaged routinely places several dynamic forces on the vessel. The precise degree of these forces is dependent upon several variables too diverse and complex for this analysis and not necessary for the purposes of this investigation. Because of the relatively small size of the J. W. WESTCOTT II in length, draft and horsepower compared to the deep draft vessels she services, the hydraulic forces have a relatively greater effect on the J. W. WESTCOTT II than on the deep draft vessels. The operators of the J. W. WESTCOTT II are all aware of the dynamic forces and the effects they have on the vessel under normal operating conditions. According to Jim Hogan, Sam Buchanan and Don Carnes, when the J. W. WESTCOTT II comes alongside a moving ship, she is drawn down in the water near the bow – reducing freeboard - and develops a list away from the freight ship. In the case of the SIDSEL KNUTSEN on October 23, 2001, the J. W. WESTCOTT II listed to port.

a. Reduction of freeboard. Refer to Enclosure 18[19]. Note the difference in freeboard between pictures 4 and 6. Note how in pictures 4 and 5 the bow of the J. W. WESTCOTT II settles down into the water when she comes alongside a moving freight ship. In picture 6, the J. W. WESTCOTT II is sailing in open water with no reduction in freeboard. This illustrates the reduction in freeboard that contributed to the amount of water that came over the bow of the J. W. WESTCOTT II on October 23, 2001. Water over the bow reduced freeboard further by adding weight to the vessel. The reduction in freeboard of the J. W. WESTCOTT II raised the center of gravity and decreased the vessel's GM (see MSC report for calculations).

b. List. When coming alongside a moving freight ship under normal conditions, the J. W. WESTCOTT II lists away from the freight ship. This phenomenon is illustrated by Enclosure 19, an undated photo of the J. W. WESTCOTT II alongside a moving freight ship. On October 23, 2001, the J. W. WESTCOTT II listed to port because she had the SIDSEL KNUTSEN on her starboard side.

2. Relationship of Speed to Suction. As previously stated, it is not possible to accurately measure the degree of suction near the hull of the SIDSEL KNUTSEN when the J. W. WESTCOTT II was alongside. However, Sam Buchanan and Don Carnes, experienced operators of the J. W. WESTCOTT II, stated that while alongside deep draft vessels, the effects of suction on the J. W. WESTCOTT II increase as the speed of the vessels increases.

a. Speed. Refer again to enclosure 18. While it is impossible to determine the speed of the vessels from these photographs, the relatively small bow wake from the deep draft vessel in photos 2 and 3 indicate that the vessel is traveling at a relatively slow speed, as compared to "river speed" (12 miles per hour). At higher speeds, the effects of suction on the J. W. WESTCOTT

[19] Enclosure 18, Series of 6 photos (date unknown) of J. W. WESTCOTT II conducting mail delivery to M/V JOHN G. MUNSON. Downloaded from www.boatnerds.com, on March 13, 2001.

II would be greater, resulting in even more reduction in freeboard and list than are evident in these photographs.

Part III. Human Factors

1. Training and Experience. The J. W. Westcott Company conducts training for all their new Captains. Although the Company does not have a formal, written training program, training consists of operating the J. W. WESTCOTT II under the guidance of a qualified, experienced operator. The Company schedules new Captains to work with as many of the qualified operators as possible. The qualified Captains consult with each other to determine if a new Captain should be allowed to operate independently. There is no prescribed time frame for, or minimum number of round trips required to earn qualification.

a. Captain Nasiatka. Captain Nasiatka began her employment with the J. W. Westcott Company on May 3, 2001. Captain Nasiatka served as a deckhand during her period of training, which lasted approximately four months. While in training, she operated the J. W. WESTCOTT II under the direction of a qualified Captain. Training was conducted under several different conditions and with different types of vessels, including barges, deep draft foreign ships, and Great Lakes vessels. Also, training was done under varying conditions, including darkness, inclement weather, high winds, and meeting vessels traveling both upbound and downbound. In all, Captain Nasiatka conducted 186 training runs before being permitted to operate the J. W. WESTCOTT II independently. Although he was not certain of the specific date, according to Sam Buchanan, the qualified operators of the J. W. Westcott Company consulted with one another in early September of 2001, and unanimously determined that Captain Nasiatka was qualified to operate the J. W. WESTCOTT II independently. Captain Nasiatka made her first trip as Captain of the J. W. WESTCOTT II on September 11, 2001. Between that time and October 23, 2001, she made 116 trips as the Captain of the J. W. WESTCOTT II. In addition, Captain Nasiatka was in the process of upgrading her license to Master, 100 Gross Tons, Great Lakes and Inland Waters. In the course of doing that, she gained a total of 95 days experience as a pilothouse observer for the Diamond Jack River Tours Company of Grosse Ile, Michigan in the waters of Lake St. Clair, the St. Clair River, the Detroit River and Lake Erie. Her experience aboard Diamond Jack vessels included hands-on instruction and direct observation of qualified operators of three vessels ranging in size from 82 to 94 gross tons.[20]

b. David Lewis. David Lewis was a part time employee of the J. W. Westcott Company during the 2000 season. He began working full time at the start of the 2001 season. Although he had no formal maritime related training, he was considered a reliable and knowledgeable employee.

[20] Enclosure 20, Letter from Steve Carrothers, Operations Manager, Diamond Jack River Tours, dated October 9, 2001.

2. Maneuvering Tactics. According to Sam Buchanan, the Senior Operator at J. W. Westcott Company, all operators, including Captain Nasiatka, are trained on how to handle the J. W. WESTCOTT II if they are stuck alongside a ship. He trains operators to first put the wheel amidships with the engine in neutral so that the J. W. WESTCOTT II might fall astern of the deep draft ship. If that doesn't work, operators are trained to put the engine in hard astern in an attempt to pop off the stern of the deep draft ship.

a. Control Positions. The wheel was found in the "hard port" position. The throttle was in the "full" position. The transmission was in between the astern and neutral positions. If this is the position that Captain Nasiatka had put the controls, she did not act according to the way she had been taught.

b. Effects of Salvage. Several large objects, including a couch, a bookshelf, and one of the engine room hatch covers, were not secured and thus were able to move about the pilothouse freely during its capsizing and sinking. Further, salvage operations required that the vessel be turned right-side-up and lifted vertically, bow down, causing objects in the pilot house to move about freely. Although there were no objects lying across the pilot house controls when the vessel was salvaged, it is possible that during salvage operations, any of these objects may have struck the controls and moved them from the position Captain Nasiatka had put them. When the J. W. WESTCOTT II was in extremis, it is likely that Captain Nasiatka attempted several maneuvers to save the vessel. For this reason, the position of the controls when the vessel was recovered is not a reliable indicator of the actions of the Captain in the seconds leading up to, or during the casualty. It is not possible to determine what specific maneuvering actions Captain Nasiatka took leading up to the casualty.

c. Maneuvering. As stated previously in this report, the operation of the J. W. WESTCOTT II most closely resembles that of a tow vessel. As such, it is reasonable to refer to tow vessel maneuvering techniques as the standard for proper operation. The proper approach for a tow vessel to take to come alongside a moving freight ship is to come alongside forward or near amidships, match the speed of the freight ship, and slowly ease towards the ship and aft. Enclosure 20[21] describes the process for a tow vessel to come alongside a moving freight ship. The J. W. WESTCOTT II had serviced the SIDSEL KNUTSEN as recently as September 15, 2001[22]. The photos in Enclosure 18 also illustrate a proper approach to a moving freight ship. These photos were not taken as part of the Coast Guard investigation but are useful in understanding the maneuver. Note in photo 2, the J. W. WESTCOTT II is starting its turn well ahead of the freight ship. In photo 3, the J. W. WESTCOTT II is coming alongside near the bow of the ship. She settles back, coming alongside the freight ship at approximately amidships in photo 4.

[21] Enclosure 21, *Shiphandling with Tugs*, pages 90-92, George H. Reid, Cornell Maritime Press, 1986
[22] Enclosure 22, Photo dated September 15, 2001 of J. W. WESTCOTT II servicing the SIDSEL KNUTSEN in the Detroit River.

d. October 23, 2001. The Ordinary Seaman on the SIDSEL KNUTSEN, Mr. Goc-Ong, stated that when making its approach on October 23, 2001, the J. W. WESTCOTT II came alongside the SIDSEL KNUTSEN from a position near the stern. He said it was further aft than what he had seen in the past. He was not sure why the J. W. WESTCOTT II came alongside further aft than normal.

3. Communication. There was never any communications between the J. W. WESTCOTT II and the SIDSEL KNUTSEN on the morning of October 23, 2001, neither verbally, by light or sound signal or by any other means.

   a. 0545: Captain Hull and Mr. Weiss, the J. W. Westcott Company Dispatcher, spoke via marine radio and agreed to a 0715 transfer.

   b. 0650: The J. W. WESTCOTT II arrived at the SIDSEL KNUTSEN, which was approximately 2,900 yards downriver from the usual pilot station where the SIDSEL KNUTSEN was expecting them.

   c. Pilot Exchange Location: Neither the crew of the J. W. WESTCOTT II nor Mr. Weiss notified the SIDSEL KNUTSEN of the plan to exchange pilots in a location other than the designated pilot station, or at a time other than the previously agreed upon time.

   d. Alongside Communications: The J. W. WESTCOTT II did not communicate to the SIDSEL KNUTSEN their intentions to come alongside.

4. Actions of the Pilot

   a. Captain Hull, the marine pilot, was stationed on the bridge of the SIDSEL KNUTSEN during the transit of Fighting Island Channel in the Detroit River. Upon completing the transit of Fighting Island Channel, where Federal project depth is 28 feet and the width of the channel is 600 feet, the SIDSEL KNUTSEN entered the relatively open waters of the Detroit River, where the depth is between 31 and 45 feet and the channel is nearly 2,000 feet wide. After clearing Fighting Island Channel, Captain Hull left the bridge to place his luggage outside of his stateroom for Ordinary Seaman Wilfredo Goc-Ong to carry to the pilot station. Captain Hull departed the bridge only after he was assured the ship's Captain was on the bridge. According to Captain Daniel Trottier, Great Lakes Pilotage Authority, Pilotage regulations do not specifically provide for instances when the pilot may leave the bridge of a ship while underway in the Great Lakes. However, Captain Trottier explained that it is an acceptable practice and considered "normal" for a pilot to momentarily leave the bridge when the ship's Captain is on the bridge. This permits pilots to tend to personal needs, such as using the rest room. The incident between the J. W. WESTCOTT II and the SIDSEL KNUTSEN took place during the moments Captain Hull was off the bridge.

Conclusions

1. The apparent cause of this casualty is the failure on the part of the operator of the J. W. WESTCOTT II to adequately assess the hydrodynamic effects that the SIDSEL KNUTSEN would have on the J. W. WESTCOTT II.

2. The contributing causes of this casualty are as follows:

    a. Vessel Maneuvering. The J. W. WESTCOTT II came alongside the SIDSEL KNUTSEN too far aft, at or near the location of the greatest hydrodynamic forces. Based on statements made by Sam Buchanan, the J. W. Westcott employee who trained her, Captain Nasiatka should have been aware that the dynamic forces were greatest near the stern of a deep draft ship. It is not possible to say why the J. W. WESTCOTT II approached the SIDSEL KNUTSEN from a point further astern than usual. It is possible that a proper approach may have reduced the risk of this casualty occurring.

        i. It is possible that Captain Nasiatka misjudged the speed of the SIDSEL KNUTSEN and began her turn too late to meet the ship farther forward. If this assumption is correct, by the time she finished her turn, the J. W. WESTCOTT II would have been too far aft to meet the SIDSEL KNUTSEN in a safe spot.

        ii. By hailing the SIDSEL KNUTSEN, the J. W. WESTCOTT II would have had an opportunity to inform the SIDSEL KNUTSEN of their intended approach and to discuss a safe speed at which to conduct the transfer of pilots.

    b. Speed. The SIDSEL KNUTSEN was traveling between 8.8 and 9.2 knots, as determined by their onboard GPS receiver. They were heading into a current of approximately 1.4 knots, making the speed over water between 10.2 and 10.6 knots. While it is not possible to determine the precise effect a lower speed would have had, it is a valid assumption that a lower speed would have resulted in less water coming over the bow of the J. W. WESTCOTT II, less water on deck, and less water entering the pilot house and engine room. Less water on board would have reduced the degree to which the J. W. WESTCOTT II lost stability. Jim Hogan and Sam Buchanan of the J. W. Westcott Company both acknowledged that there is an informal agreement amongst vessel operators in the Detroit River that the J. W. WESTCOTT II will service ships at river speed, which they acknowledged is the regulatory speed of 10.4 knots. The SIDSEL KNUTSEN was traveling at or below river speed when the J. W. WESTCOTT II came alongside. However, as in any maneuvering situation, all variables should be considered, including weather, current, load and wake conditions, vessel size (length, draft, power) and handling characteristics, and not the regulatory speed limit alone.

    c. Communications. From the time the SIDSEL KNUTSEN entered the Detroit River, until the J. W. WESTCOTT II capsized, no member of either vessel communicated with one another via any means. Communications between the

two vessels would have alerted the SIDSEL KNUTSEN that the J.W. WESTCOTT II was attempting to come alongside, and would have afforded each the opportunity to discuss an earlier transfer time than previously agreed upon and a safe speed at which to conduct the transfer. The fact that the J. W. WESTCOTT II met the SIDSEL KNUTSEN in a location over 2,900 yards before the SIDSEL KNUTSEN expected them explains why the pilot of the SIDSEL KNUTSEN was not prepared for the transfer. Communication between the two vessels would have given both operators the opportunity to discuss the transfer operation and to agree upon a safe speed at which to conduct the transfer. The Senior Operator, Sam Buchanan, and Don Carnes, another J. W. WESTCOTT II Captain, both acknowledged that is not uncommon for vessels to have no communications when the J. W. WESTCOTT II comes alongside. Three common reasons for this surfaced.

i. The engine noise of the J. W. WESTCOTT II makes hearing radio traffic difficult.

1. The engine is located directly beneath the operator. The engine room door is a ¼ deck plate with ¾ inch sound insulation.

ii. Because deep draft ships typically request service from the J. W. Westcott Company, there is an apparent assumption on the part of the Company that the deep draft ships are expecting the J. W. WESTCOTT II.

iii. It has become a fairly standard practice to conduct transfer operations without routinely hailing the deep draft ship. Since this investigation began, the Company has instituted a policy whereby they hail deep draft ships when they make their initial approach, then once alongside, and then again when they depart.

d. Watertight Integrity. The amount of water on deck alone would have reduced stability, however, it would not likely be enough to cause the vessel to capsize. Freeing ports around the deck edge were measured and determined to be within Coast Guard stability standards, although these standards do not apply to the J. W. WESTCOTT II. The amount of water that entered the vessel through the one-inch hole at the base of the engine room air vent pipe would not be sufficient for the vessel to lose stability. However, if the cargo door were watertight the ingress of water into the vessel would have been significantly less, and the vessel would have likely maintained stability. There is no requirement for the J. W. WESTCOTT II to have watertight or weathertight doors.

3. Neither the Pilot nor the Captain of the SIDSEL KNUTSEN was negligent with respect to the speed of the vessel.

4. There is no evidence that drugs or alcohol contributed to the casualty.

5. There is no evidence that operator or crew fatigue contributed to the casualty.

6. There is no evidence that structural or mechanical failure contributed to the casualty.

7. Weather and sea state did not appear to be a factor in the casualty.

8. There is no evidence of actionable misconduct, negligence, incompetence, or willful violation of law or regulation on the part of any licensed or certified person.

9. There is no evidence that any personnel of the United States Coast Guard, or any other agency of any other government, or any other person contributed to this casualty.

Recommendations

1. It is recommended that pilot vessel operators and deep draft vessel operators in the Detroit River and Lower Lake Huron develop standard protocols for transferring pilots and other cargoes between pilot boats and passing ships. Protocols should include, at a minimum, standards for communications, safe speeds, and location of transfer.

2. It is recommended that the J. W. Westcott Company conduct a review of its training procedures to determine if their current training standards are sufficient to maintain a satisfactory level of safety amongst its operators and crew. Results of this review should be forwarded to the Captain of the Port Detroit for comment.

3. It is recommended that MSO Detroit make this report available to the general public, to the extent practicable.

4. It is recommended that this investigation be closed.

Sincerely,

D. J. O'MARA
Investigating Officer

Enclosures:
(1) Copy of Coast Guard License #827771 issued to Catherine Marie Nasiatka.
(2) Certificate of Documentation for J. W. Westcott II, Official Number 258859.
(3) Copy of a portion of Chart 14848, showing casualty site in Detroit River.
(4) CG Form 2692B, Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident.
(5) CG Form 2692 from Knutsen Shipping Company.
(6) CG Form 2692 from J. W. Westcott Company.
(7) Statement of Captain Robert B. Hull.
(8) Copy of pilothouse chart taken from SIDSEL KNUTSEN on October 23, 2001.
(9) Photos of the hatch opening and foredeck of the J. W. WESTCOTT II taken on October 29, 2001.
(10) Photos of J. W. WESTCOTT II pilothouse controls taken on October 29, 2001.
(11) Photos of J. W. WESTCOTT II in dry-dock taken November 8, 2001.

(12) Photos of black marks on the side of the SIDSEL KNUTSEN taken on October 26, 2001.
(13) Photos of port side engine room vent pipe showing one-inch hole at the base of the pipe taken on November 8, 2001. .
(14) Copy of pitch order recorder readings from SIDSEL KNUTSEN on October 23, 2001 with IO annotations.
(15) Copy of Pilot Card from Captain Hull for voyage on SIDSEL KNUTSEN.
(16) Copy of course recorder readings from SIDSEL KNUTSEN on October 23, 2001 with IO annotations.
(17) Coast Guard Marine Safety Center stability analysis of J. W. WESTCOTT II dated March 12, 2002.
(18) Series of photos (date unknown) of the J. W. WESTCOTT II making delivery to M/V JOHN G. MUNSON, downloaded from www.boatnerd.com
(19) Undated photo of J. W. WESTCOTT II alongside a moving freight ship.
(20) Letter from Steve Carrothers, Operations Manager, Diamond Jack River Tours.
(21) Excerpts from *Shiphandling with Tugs.*
(22) Photo of the J. W. WESTCOTT II servicing the SIDSEL KNUTSEN taken on September 15, 2001.